

Union Calendar No.

109TH CONGRESS
2D SESSION**H. R. 5358****[Report No. 109-]**

To authorize programs relating to science, mathematics, engineering, and technology education at the National Science Foundation and the Department of Energy Office of Science, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MAY 11, 2006

Mr. SCHWARZ of Michigan (for himself, Mr. BOEHLERT, Mr. SMITH of Texas, Mr. CALVERT, Mr. EHLERS, Mrs. BIGGERT, Mr. INGLIS of South Carolina, and Mr. McCAUL of Texas) introduced the following bill; which was referred to the Committee on Science

JUNE --, 2006

Reported with an amendment, referred to the House Calendar and ordered to be printed

[Strike out all after the enacting clause and insert the part printed in *italie*]

[For text of introduced bill, see copy of bill as introduced on May 11, 2006]

A BILL

To authorize programs relating to science, mathematics, engineering, and technology education at the National Science Foundation and the Department of Energy Office of Science, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*



1 **SECTION 1. SHORT TITLE.**

2 *This Act may be cited as the “Science and Mathe-*
3 *matics Education for Competitiveness Act”.*

4 **SEC. 2. FINDINGS.**

5 *Congress finds the following:*

6 *(1) The National Science Foundation has made*
7 *significant and valuable contributions to the improve-*
8 *ment of K–12 and undergraduate science, technology,*
9 *engineering, and mathematics education throughout*
10 *its 56 year history.*

11 *(2) The National Science Foundation shall con-*
12 *tinue to carry out the functions described in section*
13 *3 of the National Science Foundation Act of 1950 (42*
14 *U.S.C. 1862).*

15 **SEC. 3. ROBERT NOYCE TEACHER SCHOLARSHIP PROGRAM.**

16 *Section 10 of the National Science Foundation Author-*
17 *ization Act of 2002 (42 U.S.C. 1862n–1) is amended—*

18 *(1) by inserting “Teacher” after “Noyce” in the*
19 *section heading and each place it appears in the text;*

20 *(2) in subsection (a)(1)—*

21 *(A) by striking “to provide scholarships, sti-*
22 *pends, and programming designed”; and*

23 *(B) by inserting “and to provide scholar-*
24 *ships and stipends to students participating in*
25 *the program” after “science teachers”;*

26 *(3) in subsection (a)(3)(A)—*



1 (A) by striking “encourage top college jun-
2 iors and seniors” and inserting “recruit and
3 prepare undergraduate students”; and

4 (B) by inserting “qualified as” after “to be-
5 come”;

6 (4) in subsection (a)(3)(A)(ii)—

7 (A) by striking “programs to help scholar-
8 ship recipients” and inserting “academic courses
9 and early field teaching experiences designed to
10 prepare students participating in the program”;

11 (B) by striking “programs that will result
12 in” and inserting “such preparation as is nec-
13 essary to meet requirements for”; and

14 (C) by striking “licensing; and” and insert-
15 ing “licensing”;

16 (5) in subsection (a)(3)(A)(iii)—

17 (A) by striking “scholarship recipients” and
18 inserting “students participating in the pro-
19 gram”;

20 (B) by striking “enable the recipients” and
21 inserting “enable the students”; and

22 (C) by striking “; or” and inserting “;
23 and”;

24 (6) in subsection (a)(3)(A) by inserting at the
25 end the following new clause:

1 “(iv) providing summer internships for
2 freshman and sophomore students partici-
3 pating in the program; or”;

4 (7) in subsection (a)(3)(B)—

5 (A) by striking “encourage” and inserting
6 “recruit and prepare”; and

7 (B) by inserting “qualified as” after “to be-
8 come”;

9 (8) by amending clause (ii) of subsection
10 (a)(3)(B) to read as follows:

11 “(ii) offering academic courses and
12 field teaching experiences designed to pre-
13 pare stipend recipients to teach in elemen-
14 tary schools and secondary schools, includ-
15 ing such preparation as necessary to meet
16 requirements for teacher certification or li-
17 censing;”;

18 (9) in subsection (a) by inserting at the end the
19 following new paragraph:

20 “(4) *ELIGIBILITY REQUIREMENT.*—To be eligible
21 for an award under this section, an institution of
22 higher education (or consortia of such institutions)
23 shall ensure that specific faculty members and staff
24 from the institution’s mathematics, science, or engi-
25 neering departments and specific education faculty



1 are designated to carry out the development and im-
2 plementation of the program. An institution of higher
3 education may also include teacher leaders to partici-
4 pate in developing the pedagogical content of the pro-
5 gram and to supervise students participating in the
6 program in their field teaching experiences. No insti-
7 tution of higher education shall be eligible for an
8 award unless faculty from the institution's mathe-
9 matics, science, or engineering departments are active
10 participants in the program.”;

11 (10) in subsection (b)(1)(A)—

12 (A) by striking “scholarship or stipend”;

13 (B) by inserting “and summer internships”
14 after “number of scholarships”; and

15 (C) by inserting “the type of activities pro-
16 posed for the recruitment of students to the pro-
17 gram,” after “intends to award,”;

18 (11) in subsection (b)(1)(B)—

19 (A) by striking “scholarship or stipend”;
20 and

21 (B) by striking “; and” and inserting “,
22 which may include a description of any existing
23 programs at the applicant's institution that are
24 targeted to the education of science and mathe-

1 *matics teachers and the number of teachers grad-*
2 *uated annually from such programs;”;*

3 *(12) in subsection (b)(1), by striking subpara-*
4 *graph (C) and inserting the following:*

5 *“(C) a description of the academic courses*
6 *and field teaching experiences required under*
7 *subsection (a)(3)(A)(ii) and (B)(ii), including—*

8 *“(i) a description of the undergraduate*
9 *program that will enable a student to grad-*
10 *uate in 4 years with a major in mathe-*
11 *matics, science, or engineering and to ob-*
12 *tain teacher certification or licensing;*

13 *“(ii) a description of the field teaching*
14 *experiences proposed; and*

15 *“(iii) evidence of agreements between*
16 *the applicant and the schools or school dis-*
17 *tricts that are identified as the locations at*
18 *which field teaching experiences will occur;*

19 *“(D) a description of the programs required*
20 *under subsection (a)(3)(A)(iii) and (B)(iii), in-*
21 *cluding activities to assist new teachers in ful-*
22 *filling their service requirements under this sec-*
23 *tion; and*

24 *“(E) an identification of the applicant’s*
25 *mathematics, science, or engineering faculty and*

1 *its education faculty who will carry out the de-*
2 *velopment and implementation of the program*
3 *as required under subsection (a)(4).”;*

4 *(13) in subsection (b)(2)—*

5 *(A) by redesignating subparagraphs (B),*
6 *(C), (D), and (E) as subparagraphs (C), (D),*
7 *(E) and (F), respectively; and*

8 *(B) by inserting after subparagraph (A) a*
9 *new subparagraph as follows:*

10 *“(B) the extent to which the applicant’s*
11 *mathematics, science, or engineering faculty and*
12 *its education faculty have worked or will work*
13 *collaboratively to design new or revised curricula*
14 *that recognizes the specialized pedagogy required*
15 *to teach mathematics and science effectively in*
16 *elementary and secondary schools;”;*

17 *(14) in subsection (c)(3)—*

18 *(A) by striking “\$7,500” and inserting*
19 *“\$10,000”; and*

20 *(B) by striking “of scholarship support”*
21 *and inserting “of scholarship support, unless the*
22 *Director establishes a policy by which part-time*
23 *students may receive additional years of sup-*
24 *port”;*

25 *(15) in subsection (c)(4)—*



1 (A) by inserting “, with a maximum service
2 requirement of 4 years” after “was received”;
3 and

4 (B) by striking “Service required under this
5 paragraph shall be performed in a high-need
6 local educational agency.”;

7 (16) in subsection (c), by adding at the end a
8 new paragraph as follows:

9 “(5) *EXCEPTION.*—The period of service obliga-
10 tion under paragraph (4) is reduced by 1 year for
11 scholarship recipients whose service is performed in a
12 high-need local educational agency.”;

13 (17) in subsection (d)(1), by striking “to receive
14 certification or licensing to teach” and inserting “es-
15 tablished under subsection (a)(3)(B)”;

16 (18) in subsection (d)(2), by inserting “and pro-
17 fessional achievement” after “academic merit”;

18 (19) in subsection (d)(3), by striking “1 year”
19 and inserting “16 months”;

20 (20) in subsection (d)(4), by striking “for each
21 year a stipend was received”;

22 (21) in subsection (g)(2)(A)—

23 (A) by striking “Treasurer of the United
24 States,” and inserting “Treasurer of the United
25 States.”; and



1 *(B) by striking “multiplied by 2.”*

2 *(22) in subsection (i)(3), by inserting “or had a*
3 *career in” after “is working in”; and*

4 *(23) by adding at the end the following:*

5 *“(j) SCIENCE AND MATHEMATICS SCHOLARSHIP GIFT*
6 *FUND.—In accordance with section 11(f) of the National*
7 *Science Foundation Act of 1950, the Director is authorized*
8 *to accept donations from the private sector to support schol-*
9 *arships, stipends, or internships associated with programs*
10 *under this section.*

11 *“(k) ASSESSMENT OF TEACHER RETENTION.—Not*
12 *later than 4 years after the date of enactment of this sub-*
13 *section, the Director shall transmit to Congress a report on*
14 *the effectiveness of the program carried out under this sec-*
15 *tion regarding the retention of participants in the teaching*
16 *profession beyond the service obligation required under this*
17 *section.*

18 *“(l) AUTHORIZATION OF APPROPRIATIONS.—Except as*
19 *provided in subsection (m), there are authorized to be ap-*
20 *propriated to the Director for the Robert Noyce Teacher*
21 *Scholarship Program—*

22 *“(1) \$50,000,000 for fiscal year 2007, of which*
23 *at least \$7,500,000 shall be used for capacity building*
24 *activities described in subsection (a)(3)(A)(ii) and*
25 *(iii) and (B)(ii) and (iii);*

1 “(2) \$70,000,000 for fiscal year 2008, of which
2 at least \$10,500,000 shall be used for capacity build-
3 ing activities described in subsection (a)(3)(A)(ii) and
4 (iii) and (B)(ii) and (iii);

5 “(3) \$90,000,000 for fiscal year 2009, of which
6 at least \$13,500,000 shall be used for capacity build-
7 ing activities described in subsection (a)(3)(A)(ii) and
8 (iii) and (B)(ii) and (iii);

9 “(4) \$110,000,000 for fiscal year 2010, of which
10 at least \$16,500,000 shall be used for capacity build-
11 ing activities described in subsection (a)(3)(A)(ii) and
12 (iii) and (B)(ii) and (iii); and

13 “(5) \$130,000,000 for fiscal year 2011, of which
14 at least \$19,500,000 shall be used for capacity build-
15 ing activities described in subsection (a)(3)(A)(ii) and
16 (iii) and (B)(ii) and (iii).

17 “(m) *EXCEPTION.*—For any fiscal year for which the
18 funding allocated for activities under this section is less
19 than \$50,000,000, the amount of funding available for ca-
20 pacity building activities described in paragraphs (1)
21 through (5) of subsection (l) shall not exceed 15 percent of
22 the allocated funds.”.



1 **SEC. 4. SCHOOL AND UNIVERSITY PARTNERSHIPS FOR**
2 **SCIENCE AND MATHEMATICS EDUCATION.**

3 (a) *IN GENERAL.*—Section 9 of the National Science
4 Foundation Authorization Act of 2002 (42 U.S.C. 1862n)
5 is amended—

6 (1) in the section heading by striking “**MATHE-**
7 **MATICS AND SCIENCE EDUCATION PARTNER-**
8 **SHIPS**” and inserting “**SCHOOL AND UNIVERSITY**
9 **PARTNERSHIPS FOR SCIENCE AND MATHE-**
10 **MATICS EDUCATION**”;

11 (2) in subsection (a)(2)—

12 (A) by striking “(A)”;

13 (B) by striking subparagraph (B);

14 (C) by inserting “, through 1 or more of its
15 departments in science, mathematics, or engi-
16 neering,” after “institution of higher education”;
17 and

18 (D) by striking “a State educational agen-
19 cy” and inserting “education faculty from the
20 participating institution or institutions of high-
21 er education, a State educational agency,”;

22 (3) in subsection (a)(3)(B) by—

23 (A) inserting “content-specific” before “pro-
24 fessional development programs”;

25 (B) inserting “which are” before “de-
26 signed”; and

1 (C) inserting “and which may include
2 teacher training activities to prepare science and
3 mathematics teachers to teach Advanced Place-
4 ment and International Baccalaureate science
5 and mathematics courses” after “and science
6 teachers”;

7 (4) in subsection (a)(3)(C) by inserting “and
8 laboratory experiences” after “technology” and by in-
9 serting “and laboratory” after “provide technical”;

10 (5) in subsection (a)(3)(E) by striking “master
11 teachers” and inserting “teacher leaders”;

12 (6) in subsection (a)(3)(I) by inserting “includ-
13 ing model induction programs for teachers in their
14 first 2 years of teaching,” after “and science,”;

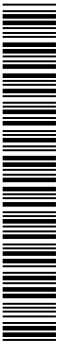
15 (7) in subsection (a)(3)(K) by striking “devel-
16 oping and offering mathematics or science enrichment
17 programs for students, including after-school and
18 summer programs;” and inserting “developing edu-
19 cational programs and materials for use in and con-
20 ducting mathematics or science enrichment programs
21 for students, including after-school programs and
22 summer camps for students described in subsection
23 (b)(2)(G);”;



1 (8) *in subsection (a)(4) by striking “master*
2 *teachers” and inserting “teacher leaders” in the para-*
3 *graph heading and each place it appears in the text;*
4 (9) *in subsection (a) by inserting at the end the*
5 *following:*

6 “(8) *MASTER’S DEGREE PROGRAMS.—Activities*
7 *carried out in accordance with paragraph (3)(B)*
8 *shall include the development and offering of master’s*
9 *degree programs for in-service mathematics and*
10 *science teachers that will strengthen their subject area*
11 *knowledge and pedagogical skills. Grants provided*
12 *under this section may be used to develop and imple-*
13 *ment courses of instruction for the master’s degree*
14 *programs, which may involve online learning, and*
15 *develop related educational materials.*

16 “(9) *MENTORS FOR ADVANCED PLACEMENT*
17 *COURSES TEACHERS AND STUDENTS.—Partnerships*
18 *carrying out activities to prepare science and mathe-*
19 *matics teachers to teach Advanced Placement and*
20 *International Baccalaureate science and mathematics*
21 *courses in accordance with paragraph (3)(B) shall en-*
22 *courage companies employing scientists, mathemati-*
23 *cians, or engineers to provide mentors to teachers and*
24 *students and provide for the coordination of such*
25 *mentoring activities.*



1 “(10) *INVENTIVENESS*.—Activities carried out in
2 accordance with paragraph (3)(H) may include the
3 development and dissemination of curriculum tools
4 that will help foster inventiveness and innovation.”;

5 (10) in subsection (b)(2) by redesignating sub-
6 paragraphs (E) and (F) as subparagraphs (F) and
7 (G), respectively, and inserting after subparagraph
8 (D) the following new subparagraph:

9 “(E) the extent to which the evaluation de-
10 scribed in paragraph (1)(E) will be independent
11 and based on objective measures;”;

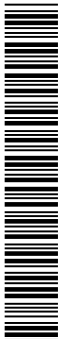
12 (11) in subsection (b)(3)(A) by striking “and” at
13 the end;

14 (12) in subsection (b)(3) by redesignating sub-
15 paragraph (B) as subparagraph (C) and inserting
16 after subparagraph (A) the following new subpara-
17 graph:

18 “(B) give priority to applications that in-
19 clude teacher training activities as the main
20 focus of the proposal; and”;

21 (13) in subsection (b) by inserting at the end the
22 following:

23 “(4) *MINIMUM AND MAXIMUM GRANT SIZE*.—A
24 grant awarded under this section shall be not less



1 *than \$75,000 or greater than \$2,000,000 for any fis-*
2 *cal year.”;*

3 *(14) in subsection (c)—*

4 *(A) by striking paragraph (2);*

5 *(B) by redesignating paragraphs (3), (4),*
6 *and (5) as paragraphs (4), (5), and (6), respec-*
7 *tively; and*

8 *(C) by inserting after paragraph (1) the fol-*
9 *lowing new paragraphs:*

10 “(2) *REPORT ON MODEL PROJECTS.—The Direc-*
11 *tor shall determine which completed projects funded*
12 *through the program under this section should be seen*
13 *as models to be replicated on a more expansive basis*
14 *at the State or national levels. Not later than 1 year*
15 *after the date of enactment of this paragraph, the Di-*
16 *rector shall transmit a report describing the results of*
17 *this study to the Committee on Science and the Com-*
18 *mittee on Education and the Workforce of the House*
19 *of Representatives and to the Committee on Com-*
20 *merce, Science, and Transportation and the Com-*
21 *mittee on Health, Education, Labor, and Pensions of*
22 *the Senate.*

23 “(3) *REPORT ON EVALUATIONS.—Not later than*
24 *4 years after the date of enactment of this paragraph,*
25 *the Director shall transmit a report summarizing the*



1 *evaluations required under subsection (b)(1)(E) of*
2 *grants received under this program and describing*
3 *any changes to the program recommended as a result*
4 *of these evaluations to the Committee on Science and*
5 *the Committee on Education and the Workforce of the*
6 *House of Representatives and to the Committee on*
7 *Commerce, Science, and Transportation and the Com-*
8 *mittee on Health, Education, Labor, and Pensions of*
9 *the Senate. Such report shall be made widely avail-*
10 *able to the public.”; and*

11 *(15) by adding at the end the following new sub-*
12 *section:*

13 “(d) *DEFINITION.—In this section, the term ‘mathe-*
14 *matics and science teacher’ means a mathematics, science,*
15 *or technology teacher at the elementary school or secondary*
16 *school level.”.*

17 (b) *DEFINITIONS.—Section 4 of the National Science*
18 *Foundation Authorization Act of 2002 (42 U.S.C. 1862n*
19 *note) is amended—*

20 *(1) by amending paragraph (6) to read as fol-*
21 *lows:*

22 “(6) *ELIGIBLE NONPROFIT ORGANIZATION.—The*
23 *term ‘eligible nonprofit organization’ means a non-*
24 *profit organization, such as a museum or science cen-*



1 *ter, involved in the preparation, training, or certifi-*
2 *cation of science and mathematics teachers.”;*

3 *(2) by amending paragraph (8) to read as fol-*
4 *lows:*

5 *“(8) HIGH-NEED LOCAL EDUCATIONAL AGEN-*
6 *CY.—The term ‘high-need local educational agency’*
7 *means a local educational agency that—*

8 *“(A) is receiving grants under title I of the*
9 *Elementary and Secondary Education Act of*
10 *1965 (20 U.S.C. 6301 et seq) as a result of hav-*
11 *ing within its jurisdiction concentrations of chil-*
12 *dren from low income families; and*

13 *“(B) is experiencing a shortage of highly*
14 *qualified teachers, as defined in section 9101 of*
15 *the Elementary and Secondary Education Act of*
16 *1965 (20 U.S.C. 7801), in the fields of science,*
17 *mathematics, or engineering.”; and*

18 *(3) in paragraph (11) by striking “master teach-*
19 *er” and inserting “teacher leader” in the paragraph*
20 *heading and in the text, and by striking “master*
21 *teachers” and inserting “teacher leaders” .*

22 *(c) AUTHORIZATION OF APPROPRIATIONS.—There are*
23 *authorized to be appropriated to the Director of the Na-*
24 *tional Science Foundation for the School and University*



1 *Partnerships for Science and Mathematics Education*
2 *program—*

3 (1) \$63,000,000 for fiscal year 2007;

4 (2) \$73,000,000 for fiscal year 2008;

5 (3) \$83,000,000 for fiscal year 2009;

6 (4) \$93,000,000 for fiscal year 2010; and

7 (5) \$103,000,000 for fiscal year 2011.

8 **SEC. 5. SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH-**
9 **EMATICS TALENT EXPANSION PROGRAM.**

10 (a) *AMENDMENTS.*—Section 8(7) of the National
11 Science Foundation Authorization Act of 2002 is
12 amended—

13 (1) in subparagraph (A) by striking “competi-
14 tive, merit-based” and all that follows through “in re-
15 cent years” and inserting “competitive, merit-re-
16 viewed multiyear grants for eligible applicants to im-
17 prove undergraduate education in science, mathe-
18 matics, engineering and technology through—

19 “(i) the creation of programs to increase the
20 number of students studying toward and com-
21 pleting associate’s or bachelor’s degrees in
22 science, mathematics, engineering and tech-
23 nology, particularly in fields that have faced de-
24 clining enrollment in recent years; and

1 “(ii) the creation of centers to develop un-
2 dergraduate curriculum, teaching methods for
3 undergraduate courses, and methods to better
4 train professors and teaching assistants who
5 teach undergraduate courses to increase the num-
6 ber of students completing undergraduate courses
7 in science, mathematics, technology, and engi-
8 neering, including the number of nonmajors, and
9 to improve student academic achievement in
10 those courses.

11 *Grants made under clause (ii) shall be awarded joint-*
12 *ly through the Education and Human Resources Di-*
13 *rectorate and at least 1 research directorate of the*
14 *Foundation”;*

15 (2) in subparagraph (B) by striking “under this
16 paragraph” and inserting “under subparagraph
17 (A)(i)”;

18 (3) in subparagraph (C)—

19 (A) by inserting “(i)” before “The types of”;

20 (B) by redesignating clauses (i) through (vi)
21 as subclauses (I) through (VI), respectively;

22 (C) by striking “under this paragraph” and
23 inserting “under subparagraph (A)(i)”;

24 (D) by adding at the end the following new
25 clause:

1 “(ii) *The types of activities the Foundation may*
2 *support under subparagraph (A)(ii) include—*

3 “(I) *creating model curricula and labora-*
4 *tory programs;*

5 “(II) *developing and demonstrating re-*
6 *search-based instructional methods and tech-*
7 *nologies;*

8 “(III) *developing methods to train graduate*
9 *students and faculty to be more effective teachers*
10 *of undergraduates;*

11 “(IV) *conducting programs to disseminate*
12 *curricula, instructional methods, or training*
13 *methods to faculty at the grantee institutions*
14 *and at other institutions;*

15 “(V) *conducting assessments of the effective-*
16 *ness of the Center at accomplishing the goals de-*
17 *scribed in subparagraph (A)(ii); and*

18 “(VI) *conducting any other activities the*
19 *Director determines will accomplish the goals de-*
20 *scribed in subparagraph (A)(ii).”;*

21 (4) *in subparagraph (D)(i), by striking “under*
22 *this paragraph” and inserting “under subparagraph*
23 *(A)(i)”;*



1 (5) in subparagraph (D)(ii), by striking “under
2 this paragraph” and inserting “under subparagraph
3 (A)(i)”;

4 (6) after subparagraph (D)(iii), by adding the
5 following new clause:

6 “(iv) A grant under subparagraph (A)(ii) shall
7 be awarded for 5 years, and the Director may extend
8 such a grant for up to 2 additional 3 year periods.”;

9 (7) in subparagraph (E), by striking “under this
10 paragraph” both places it appears and inserting
11 “under subparagraph (A)(i)”;

12 (8) by redesignating subparagraph (F) as sub-
13 paragraph (J); and

14 (9) by inserting after subparagraph (E) the fol-
15 lowing new subparagraphs:

16 “(F) Grants awarded under subparagraph
17 (A)(ii) shall be carried out by a department or de-
18 partments of science, mathematics, or engineering at
19 institutions of higher education (or a consortia there-
20 of), which may partner with education faculty. Appli-
21 cations for awards under subparagraph (A)(ii) shall
22 be submitted to the Director at such time, in such
23 manner, and containing such information as the Di-
24 rector may require. At a minimum, the application
25 shall include—

1 “(i) a description of the activities to be car-
2 ried out by the Center;

3 “(ii) a plan for disseminating programs re-
4 lated to the activities carried out by the Center
5 to faculty at the grantee institution and at other
6 institutions;

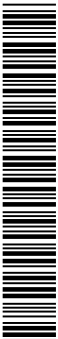
7 “(iii) an estimate of the number of faculty,
8 graduate students (if any), and undergraduate
9 students who will be affected by the activities
10 carried out by the Center; and

11 “(iv) a plan for assessing the effectiveness of
12 the Center at accomplishing the goals described
13 in subparagraph (A)(ii).

14 “(G) in evaluating the applications submitted
15 under subparagraph (F), the Director shall consider,
16 at a minimum—

17 “(i) the ability of the applicant to effec-
18 tively carry out the proposed activities, includ-
19 ing the dissemination activities described in sub-
20 paragraph (C)(ii)(IV); and

21 “(ii) the extent to which the faculty, staff,
22 and administrators of the applicant institution
23 are committed to improving undergraduate
24 science, mathematics, and engineering education.



1 “(H) In awarding grants under subparagraph
2 (A)(ii), the Director shall endeavor to ensure that a
3 wide variety of science, mathematics, and engineering
4 fields and types of institutions of higher education,
5 including 2-year colleges, are covered, and that—

6 “(i) at least 1 Center is housed at a Doc-
7 toral/Research University as defined by the Car-
8 negie Foundation for the Advancement of Teach-
9 ing; and

10 “(ii) at least 1 Center is focused on improv-
11 ing undergraduate education in an interdiscipli-
12 nary area.

13 “(I) The Director shall convene an annual meet-
14 ing of the awardees under this paragraph to foster
15 collaboration and to disseminate the results of the
16 Centers and the other activities funded under this
17 paragraph.”.

18 (b) *REPORT ON DATA COLLECTION.*—Not later than
19 180 days after the date of enactment of this Act, the Direc-
20 tor shall transmit to Congress a report on how the Director
21 is determining whether current grant recipients in the
22 Science, Technology, Engineering, and Mathematics Talent
23 Expansion Program are making satisfactory progress as re-
24 quired by section 8(7)(D)(ii) of the National Science Foun-



1 *ation Authorization Act of 2002 and what funding actions*
2 *have been taken as a result of the Director's determinations.*

3 *(c) AUTHORIZATION OF APPROPRIATIONS.—There are*
4 *authorized to be appropriated to the Director of the Na-*
5 *tional Science Foundation for the program described in sec-*
6 *tion 8(7) of the National Science Foundation Authorization*
7 *Act of 2002—*

8 *(1) \$44,000,000 for fiscal year 2007, of which*
9 *\$4,000,000 shall be for the grants described in sub-*
10 *paragraph (A)(ii);*

11 *(2) \$55,000,000 for fiscal year 2008, of which*
12 *\$10,000,000 shall be for the grants described in sub-*
13 *paragraph (A)(ii);*

14 *(3) \$60,000,000 for fiscal year 2009, of which*
15 *\$10,000,000 shall be for the grants described in sub-*
16 *paragraph (A)(ii);*

17 *(4) \$60,000,000 for fiscal year 2010, of which*
18 *\$10,000,000 shall be for the grants described in sub-*
19 *paragraph (A)(ii); and*

20 *(5) \$60,000,000 for fiscal year 2011, of which*
21 *\$10,000,000 shall be for the grants described in sub-*
22 *paragraph (A)(ii).*



1 **SEC. 6. INTEGRATIVE GRADUATE EDUCATION AND RE-**
2 **SEARCH TRAINEESHIP PROGRAM.**

3 (a) *FUNDING.*—For each of the fiscal years 2007
4 through 2011, the Director of the National Science Founda-
5 tion shall allocate at least 1.5 percent of funds appropriated
6 for Research and Related Activities to the Integrative Grad-
7 uate Education and Research Traineeship program.

8 (b) *COORDINATION.*—The Director shall coordinate
9 with Federal departments and agencies, as appropriate, to
10 expand the interdisciplinary nature of the Integrative
11 Graduate Education and Research Traineeship program.

12 (c) *AUTHORITY TO ACCEPT FUNDS FROM OTHER*
13 *AGENCIES.*—The Director is authorized to accept funds
14 from other Federal departments and agencies to carry out
15 the Integrative Graduate Education and Research
16 Traineeship program.

17 **SEC. 7. CENTERS FOR RESEARCH ON LEARNING AND EDU-**
18 **CATION IMPROVEMENT.**

19 The Director of the National Science Foundation shall
20 continue to carry out the program of Centers for Research
21 on Learning and Education Improvement as established in
22 section 11 of the National Science Foundation Authoriza-
23 tion Act of 2002 (42 U.S.C. 1862n–2).

24 **SEC. 8. UNDERGRADUATE EDUCATION PROGRAMS.**

25 The Director of the National Science Foundation shall
26 continue to carry out programs in undergraduate edu-

1 cation, including those authorized in section 17 of the Na-
2 tional Science Foundation Authorization Act of 2002 (42
3 U.S.C. 1862n–6). Funding for these programs shall increase
4 as funding for the National Science Foundation grows.

5 **SEC. 9. EVALUATION OF PROFESSIONAL SCIENCE MASTERS.**

6 Not earlier than 1 year after the date of enactment
7 of this Act, the Director of the National Science Foundation
8 shall enter into an agreement with an appropriate party
9 to assess the impact of the Professional Science Master's
10 (PSM) degree at a variety of institutions, including the ex-
11 tent to which the degree is interdisciplinary and targeted
12 to emerging fields, such as services sciences, the ability of
13 graduates to obtain employment in industry relative to
14 those who receive traditional science master's degrees, sal-
15 ary ranges for graduates relative to traditional science mas-
16 ters graduates, the extent to which the degree is terminal
17 or graduates go on to continue their education, and the suc-
18 cess of the degree in attracting traditionally underrep-
19 resented populations, including women and minorities. The
20 results of such study, together with any recommendations
21 for Federal support for Professional Science Master's pro-
22 grams, shall be transmitted to the Congress not later than
23 3 years after the date of enactment of this Act.



1 **SEC. 10. REPORT ON BROADER IMPACTS CRITERION.**

2 *Not later than 1 year after the date of enactment of*
3 *this Act, the Director of the National Science Foundation*
4 *shall transmit to Congress a report on the impact of the*
5 *broader impacts grant criterion used by the National*
6 *Science Foundation. The report shall—*

7 *(1) identify the criteria that each division and*
8 *directorates of the Foundation uses to evaluate the*
9 *broader impacts aspects of research proposals;*

10 *(2) provide a breakdown of the types of activities*
11 *by division that awardees have proposed to carry out*
12 *to meet the broader impacts criterion;*

13 *(3) provide any evaluations performed by the*
14 *National Science Foundation to assess the degree to*
15 *which the broader impacts aspects of research pro-*
16 *posals were carried out and how effective they have*
17 *been at meeting the goals described in the research*
18 *proposals;*

19 *(4) describe what national goals, such as improv-*
20 *ing undergraduate science, mathematics, and engi-*
21 *neering education, improving K–12 science and*
22 *mathematics education, promoting university-indus-*
23 *try collaboration and technology transfer, and broad-*
24 *ening participation of underrepresented groups, the*
25 *broader impacts criterion is best suited to promote;*
26 *and*

1 (5) describe what steps the National Science
2 Foundation is taking and should take to use the
3 broader impacts criterion to improve undergraduate
4 science, mathematics, and engineering education.

5 **SEC. 11. STUDY ON LABORATORY EQUIPMENT DONATIONS**
6 **FOR SCHOOLS.**

7 Not later than 2 years after the date of enactment of
8 this Act, the Director of the National Science Foundation
9 shall transmit a report to the Congress examining the extent
10 to which institutions of higher education are donating used
11 laboratory equipment to elementary and secondary schools.
12 The Director, in consultation with the Secretary of Edu-
13 cation, shall survey institutions of higher education to
14 determine—

15 (1) how often, how much, and what type of
16 equipment is donated;

17 (2) what criteria or guidelines the institutions
18 are using to determine what types of equipment can
19 be donated, what condition the equipment should be
20 in, and which schools receive the equipment;

21 (3) whether the institutions provide any support
22 to, or follow-up with the schools; and

23 (4) how appropriate donations can be encour-
24 aged.



1 **SEC. 12. ASSESSMENTS OF NATIONAL SCIENCE FOUNDA-**
2 **TION EDUCATION PROGRAMS.**

3 *In conducting assessments of National Science Foun-*
4 *dation education programs, the Director shall use assess-*
5 *ment methods that allow Foundation programs to be com-*
6 *pared to education programs supported by other Federal*
7 *agencies.*

8 **SEC. 13. EDUCATION PROGRAMS AT THE DEPARTMENT OF**
9 **ENERGY.**

10 *(a) AUTHORIZATION OF EDUCATION PROGRAMS.—The*
11 *Secretary of Energy, acting through the Office of Science,*
12 *shall carry out education programs and activities in fields*
13 *related to the Office of Science’s mission, which may include*
14 *awarding scholarships or fellowships for study and re-*
15 *search, providing research experiences at National Labora-*
16 *tories for undergraduates, and operating summer institutes*
17 *to improve the content knowledge of science and mathe-*
18 *matics teachers.*

19 *(b) INVENTORY AND EVALUATION.—*

20 *(1) REPORT.—Not later than 1 year after the*
21 *date of enactment of this Act, the Secretary of Energy*
22 *shall transmit a report to the Congress which shall*
23 *contain—*

24 *(A) an inventory of existing education pro-*
25 *grams and activities at the Department and at*
26 *the National Laboratories, which shall include a*

1 *description of each education program or activ-*
2 *ity supported by the Department or the National*
3 *Laboratories, a description of the intended bene-*
4 *ficiaries, and the amount of Federal funding*
5 *used to support it; and*

6 *(B) a schedule for conducting independent*
7 *evaluations of the education programs and ac-*
8 *tivities identified under subparagraph (A) to as-*
9 *sess the impact of such programs and activities*
10 *on the intended beneficiaries and the larger mis-*
11 *sion of the Office of Science that shall result in*
12 *all evaluations of the programs being completed*
13 *not later than 4 years after the date of enact-*
14 *ment of this Act.*

15 *(2) IMPLEMENTATION OF SCHEDULE.—The Sec-*
16 *retary shall implement the schedule provided under*
17 *paragraph (1)(B) and shall transmit each evaluation*
18 *to the Congress as it is completed, along with a de-*
19 *scription of any actions the Secretary intends to take*
20 *as a result of the evaluation.*

21 *(c) NATIONAL LABORATORIES.—The Secretary shall*
22 *include the conduct of education programs at the National*
23 *Laboratories and the results of any evaluations of such pro-*
24 *grams as a factor in the annual setting of the performance*



1 *and other incentive fees for a National Laboratories man-*
2 *agement and operations contractor.*

3 **SEC. 14. DEFINITIONS.**

4 *In this Act—*

5 *(1) the term “institution of higher education”*
6 *has the meaning given such term in section 101(a) of*
7 *the Higher Education Act of 1965 (20 U.S.C.*
8 *1001(a)); and*
9 *(2) the term “National Laboratory” has the*
10 *meaning given the term “nonmilitary energy labora-*
11 *tory” in section 903(3) of the Energy Policy Act of*
12 *2005 (42 U.S.C. 16182(3)).*



Union Calendar No.

109TH CONGRESS
2D Session

H. R. 5358

[Report No. 109-]

A BILL

To authorize programs relating to science, mathematics, engineering, and technology education at the National Science Foundation and the Department of Energy Office of Science, and for other purposes.